

ABSTRACT OF THE DISCLOSURE

[46] Certain embodiments of the present invention provide a system and method for calibrating an instrument for an image-guided operation. The method includes placing a plurality of fiducials on an instrument, obtaining a plurality of measurements for the instrument using the plurality of fiducials, determining a representation of the instrument in a reference coordinate system using the plurality of measurements for use in tracking the instrument, and performing an image-guided operation using an image data set and representation of the instrument. The representation may be a closed form registration for the instrument. The measurements for the instrument may be obtained using a plurality of fiducials and a sensor. The fiducials may be indentations and/or grooves in the instrument. In an embodiment, the representation of the instrument is dynamically updated during an image-guided operation. In an embodiment, the representation of the instrument is compared to a computer-generated model of the instrument.